FIG. 1

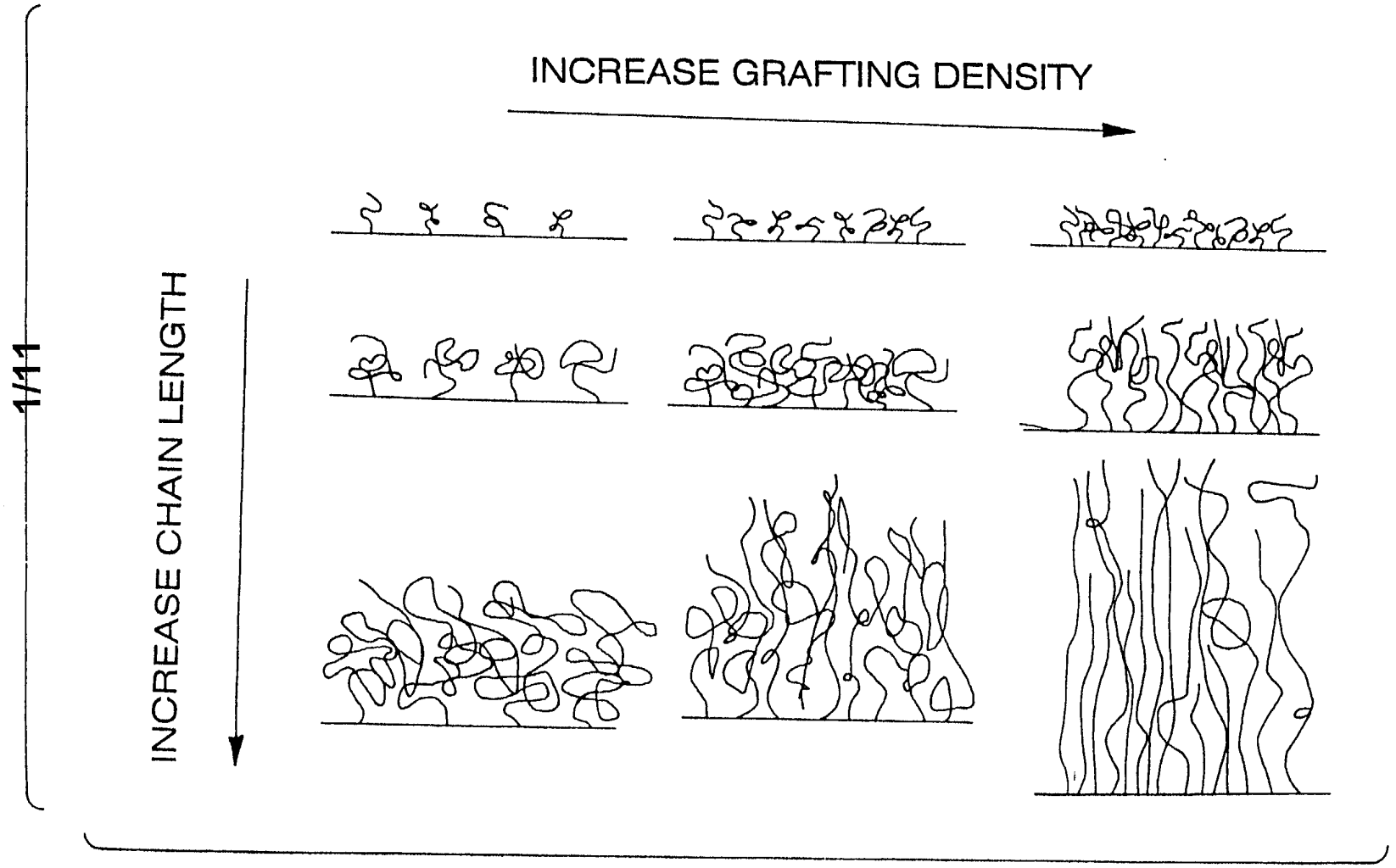


FIG. 2

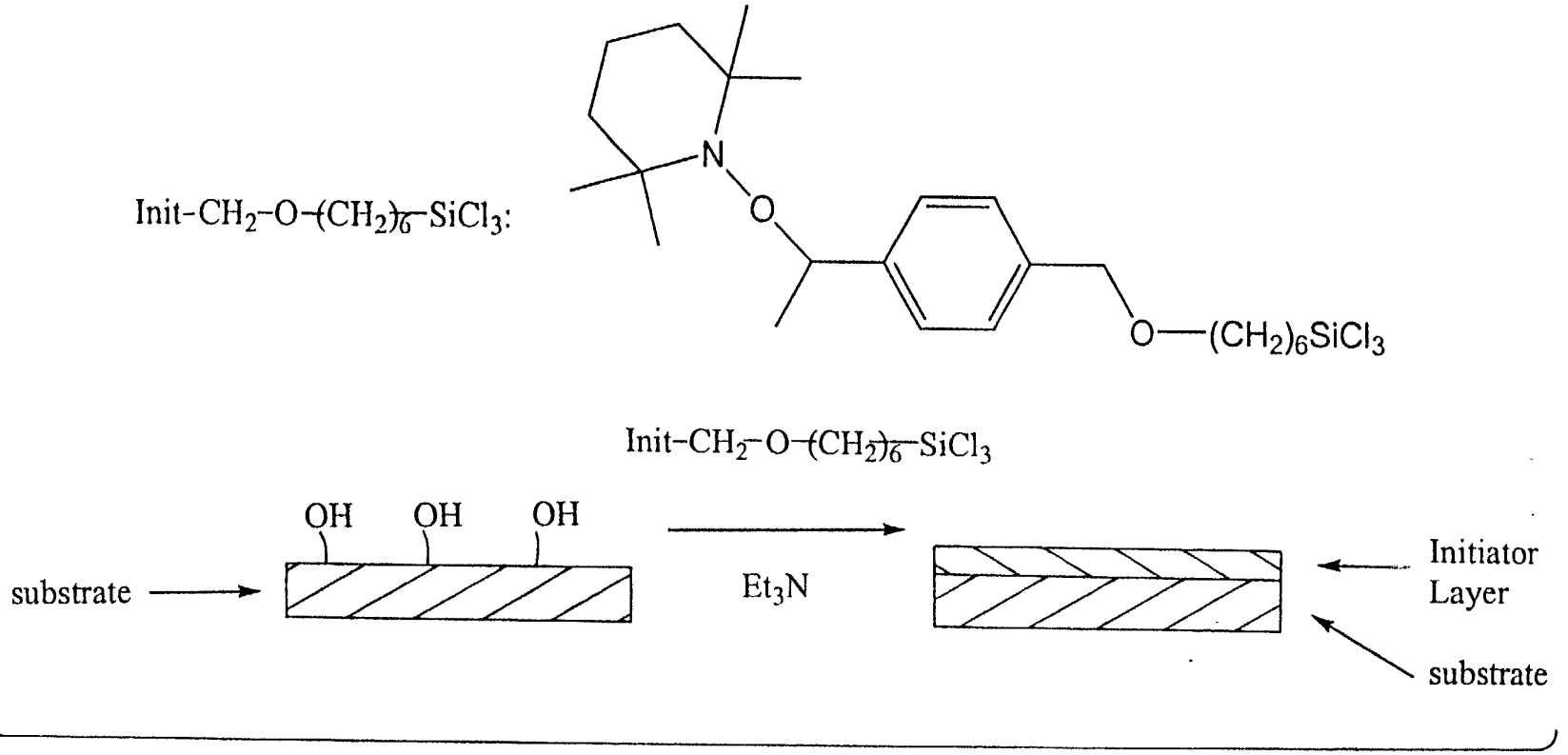

Init-CH2-O-(CH2)6-SiCl3:
N
O
O—(CH2)6SiCl3
Init-CH2-O-(CH2)6-SiCl3
OH
OH
OH
substrate
Et3N
Initiator Layer
substrate

FIG. 3

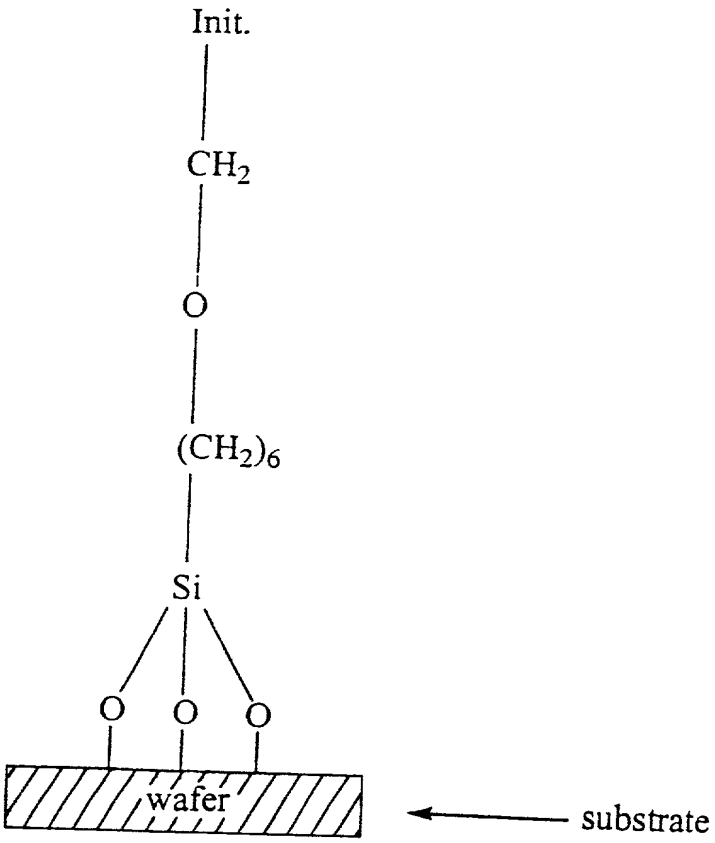


FIG. 4

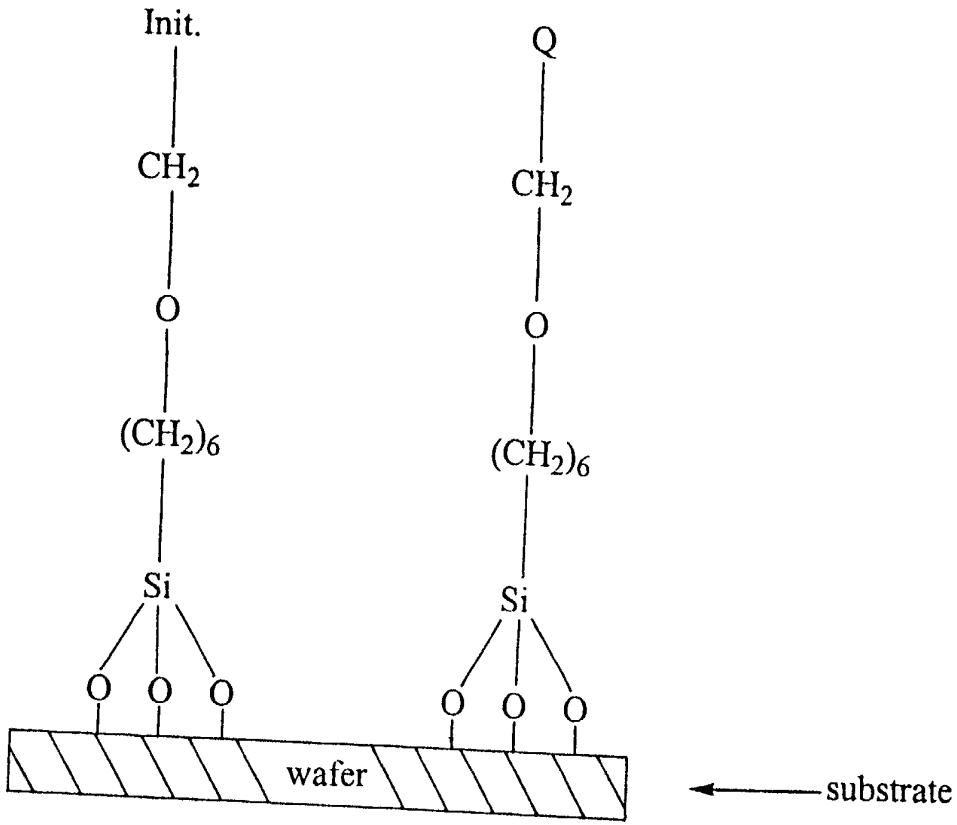


FIG. 5

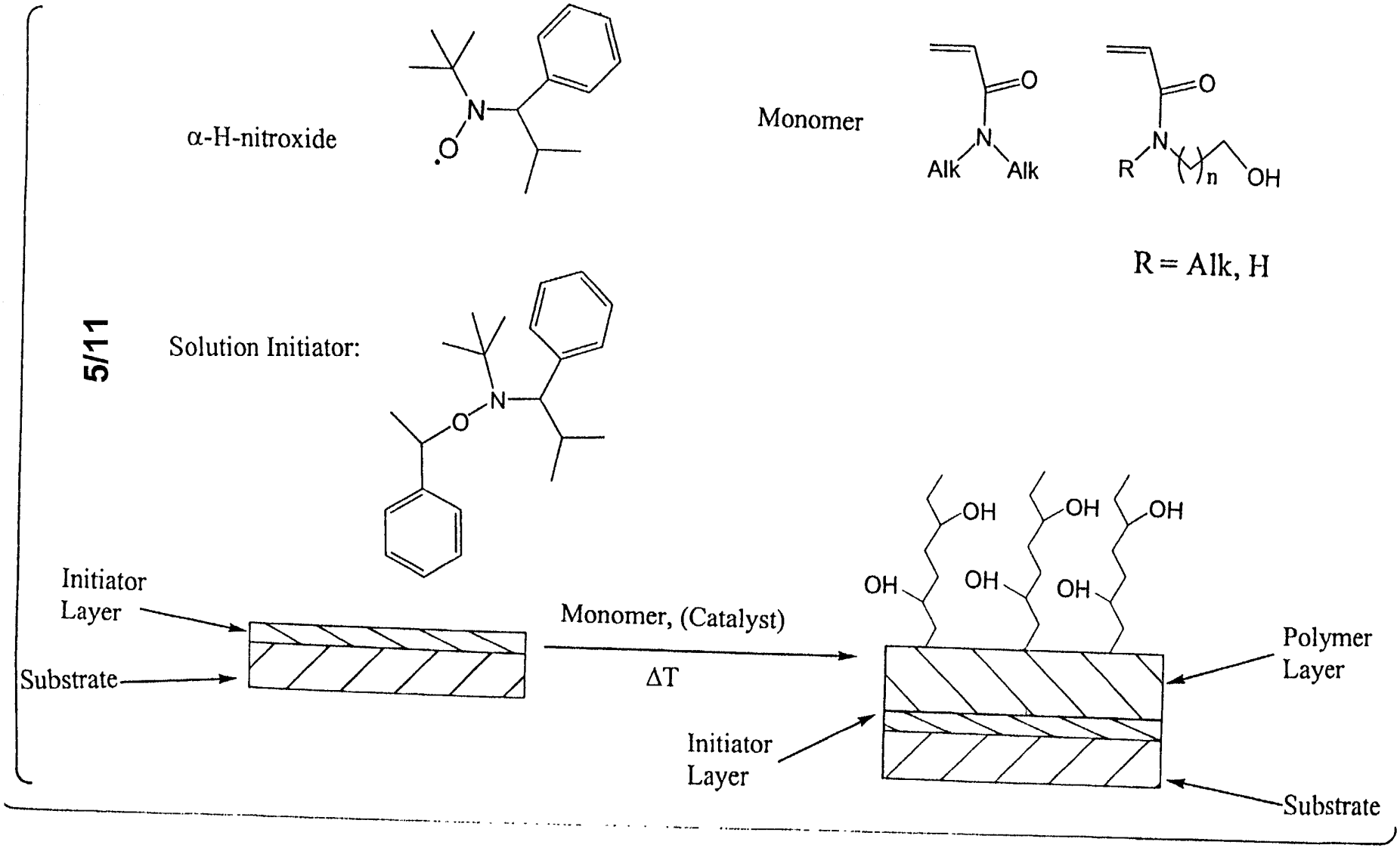

α-H-nitroxide
Monomer
Alk
Alk
R
n
OH
R = Alk, H
5/11
Solution Initiator:
Initiator Layer
Substrate
Monomer, (Catalyst)
ΔT
OH
Polymer Layer
Initiator Layer
Substrate

FIG. 6

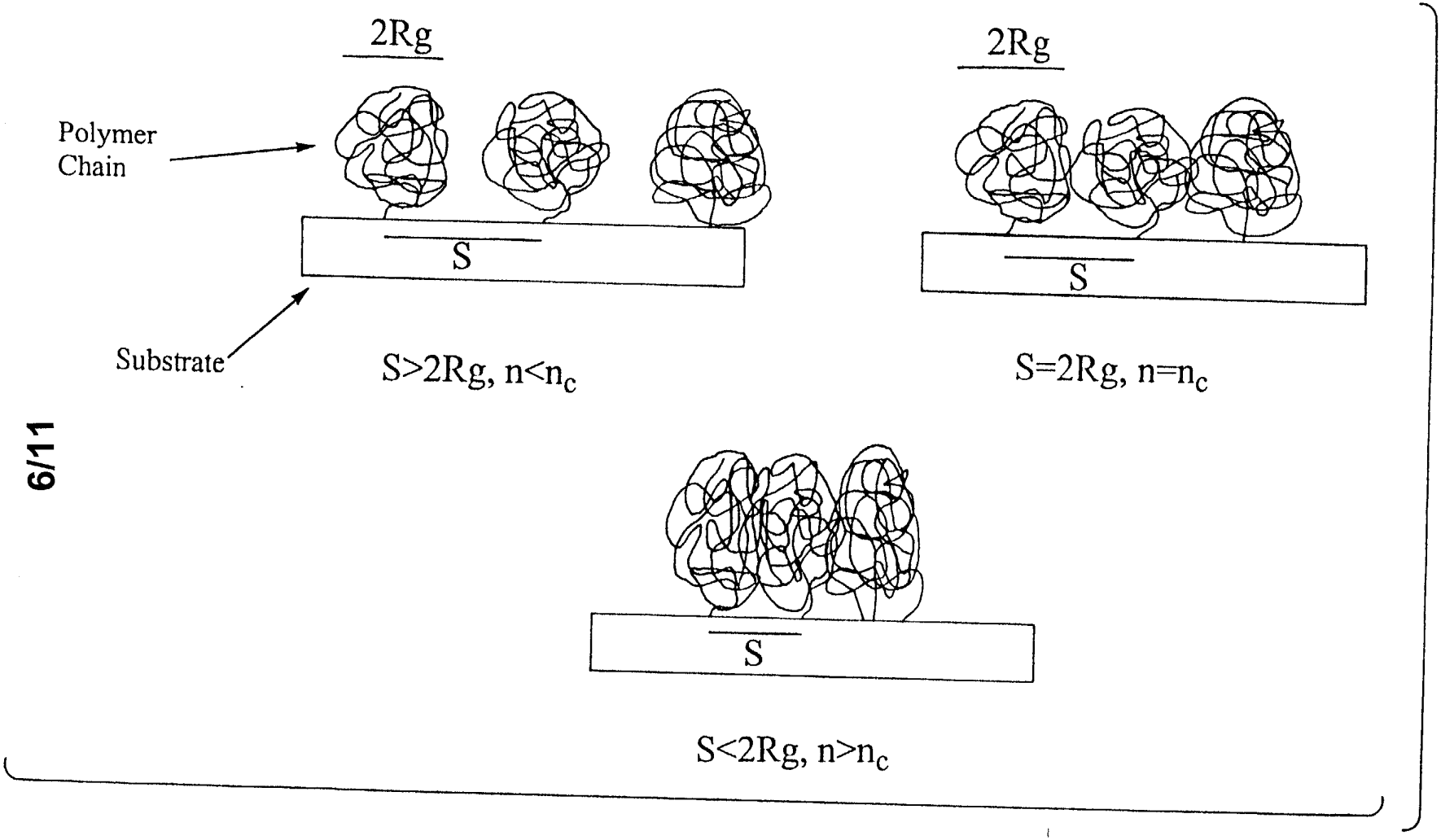
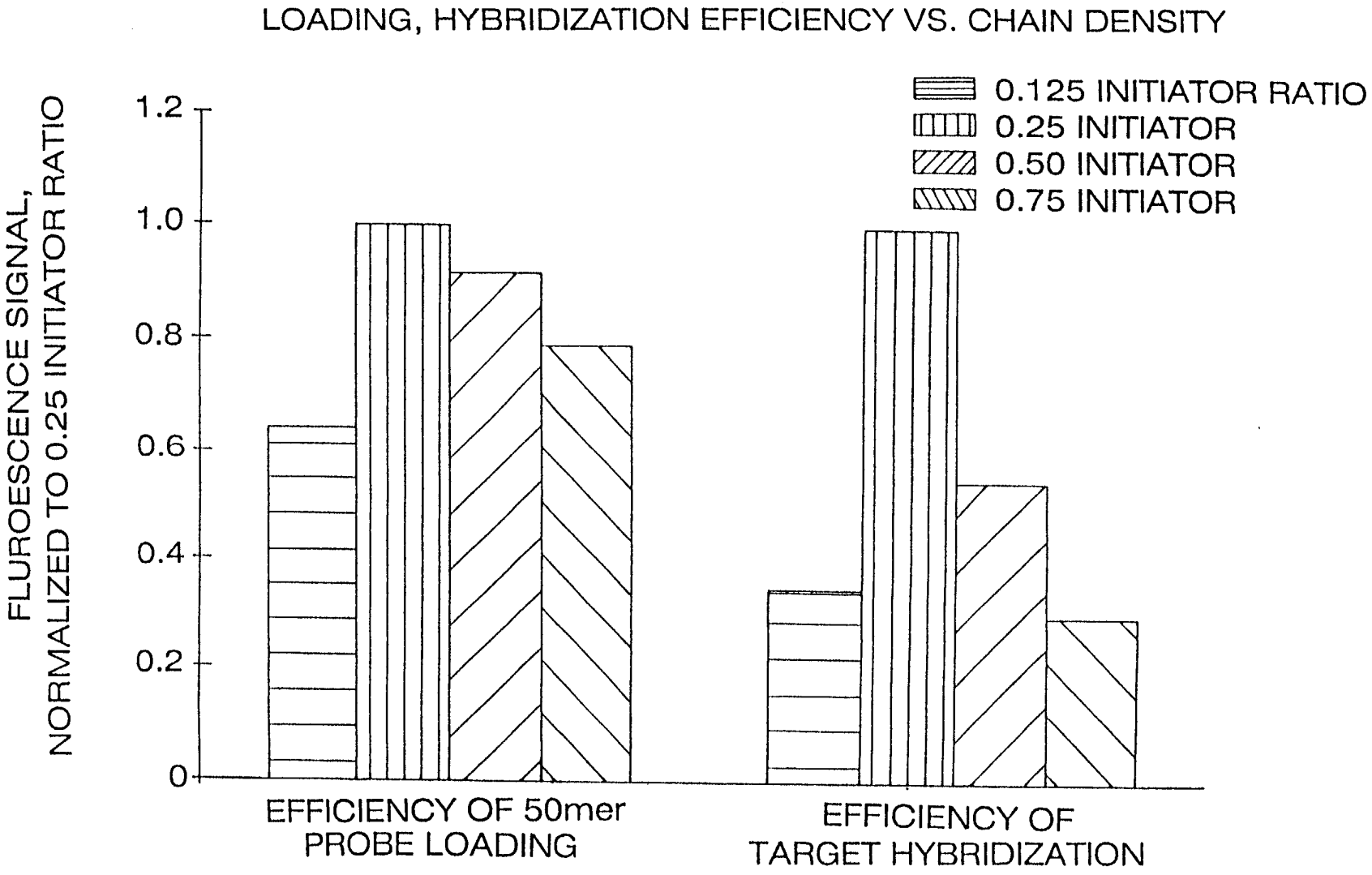

2Rg
Polymer Chain
S
Substrate
S>2Rg, n<nc
2Rg
S
S=2Rg, n=nc
S
S<2Rg, n>nc

FIG. 7


LOADING, HYBRIDIZATION EFFICIENCY VS. CHAIN DENSITY
0.125 INITIATOR RATIO
0.25 INITIATOR
0.50 INITIATOR
0.75 INITIATOR
FLUROESCENCE SIGNAL, NORMALIZED TO 0.25 INITIATOR RATIO
1.2
1.0
0.8
0.6
0.4
0.2
0
EFFICIENCY OF 50mer PROBE LOADING
EFFICIENCY OF TARGET HYBRIDIZATION

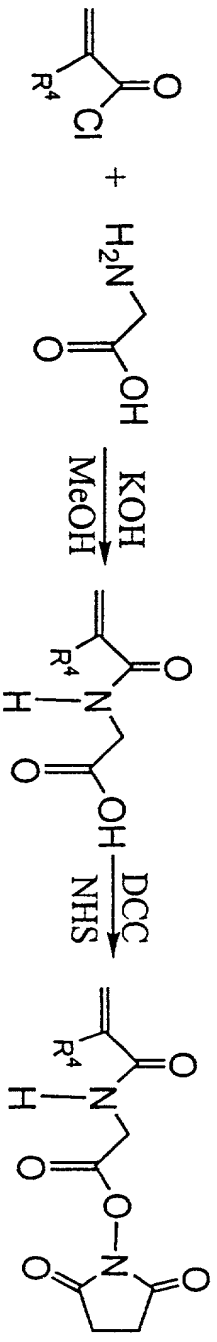


Figure 8a

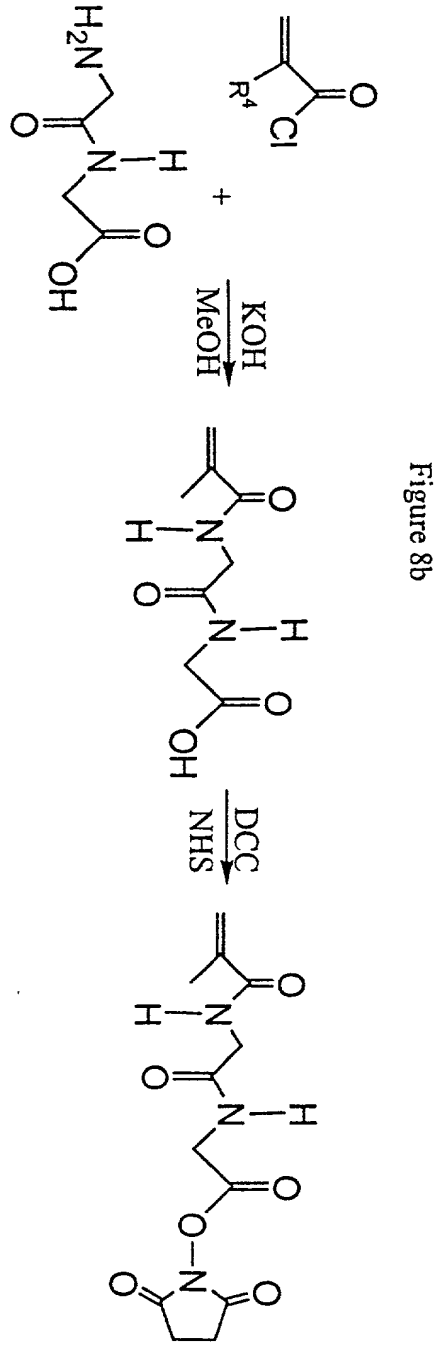


Figure 8b

Fig. 9

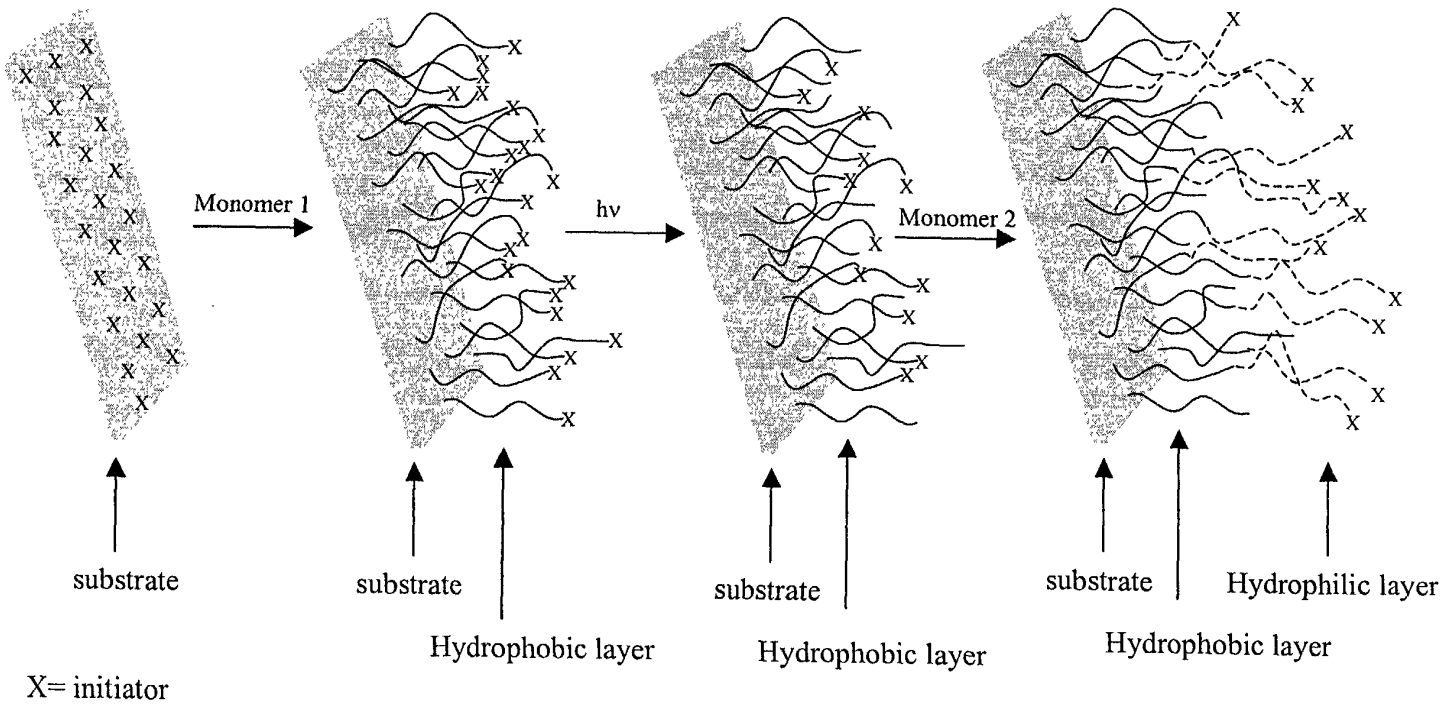

Monomer 1
hν
Monomer 2
substrate
substrate
Hydrophobic layer
substrate
Hydrophobic layer
substrate
Hydrophilic layer
Hydrophobic layer
X= initiator

FIG. 10a

Probe Loading (fluorescent count)						
		NHSMA/DMA Monomer Ratio				
		1%	3%	5%	10%	25%
Chain Density	2%					
	5%					1042
	15%			4174	2507	2064
	50%			7221	3822	1961
	75%	989	5048	25209		
	100%	1503	2865	10258		

FIG. 10b

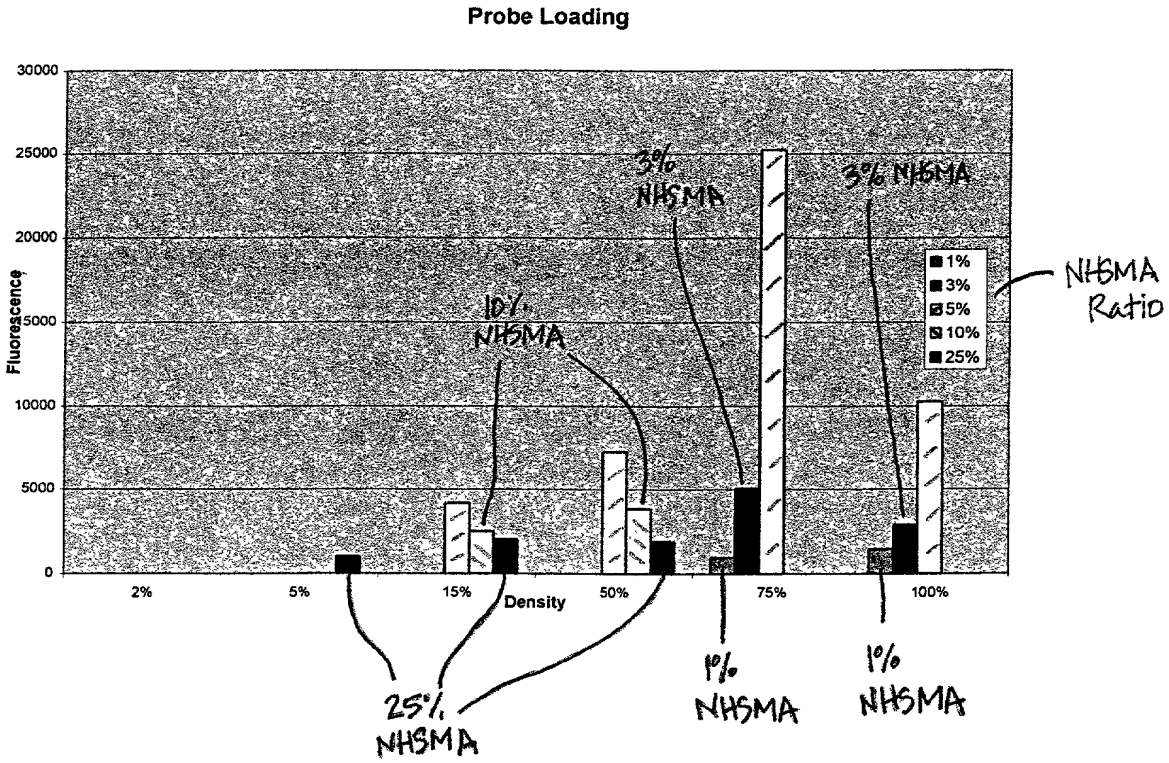


FIG. 10c

Hybridization (fluorescent count)						
		NHSMA/DMA Monomer Ratio				
		1%	3%	5%	10%	25%
Chain Density	2%					
	5%					894
	15%			4288	1342	1138
	50%			5132	2567	539
	75%	4300	9340	10992		
	100%	3588	9058	8514		

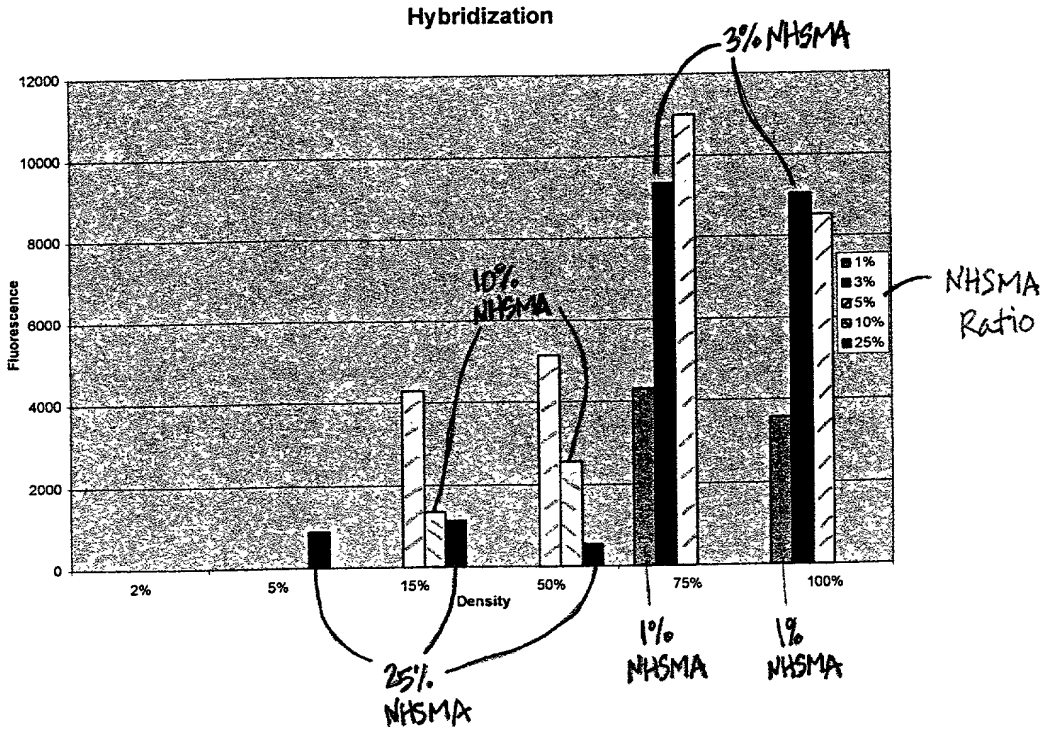



FIG. 10d